

DOCUMENT RESUME

ED 080 138

PS 006 605

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TITLE Helping Children Develop Their Full Potential.
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Exceptional Children.
PUB DATE [73]
NOTE 13p.
EDRS PRICE MF-\$0.65 HC-\$3.29
DESCRIPTORS Behavior Change; *Child Development; *Child
Psychology; Cognitive Ability; Educational Diagnosis;
Learning Characteristics; *Learning Difficulties;
Learning Processes; Literature Reviews

ABSTRACT

Helping a child attain his full psychological potential consists of providing him with opportunities to learn in both natural and instructional settings. Learning is defined in the psychological literature either as a hypothetical mental ability or as a relationship between repeated stimulation and changes in performance. Both definitions are rejected. There are two implications of this analysis for children with problems in self-care, language, school subjects, and social behavior. First, it is more fruitful to refer to these children as children with specific problems than with learning disorders. Second, it suggests that findings from the experimental literature can readily be applied to helping the teacher help the child. (CK)

U.S. DEPARTMENT OF HEALTH,
EDUCATION & WELFARE
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The Pediatric Clinics of
North America (in press)

Helping Children Develop Their Full Potential

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Developing the full potential of children, and hence of mankind, is the objective of educational instruction and it makes little or no difference whether the setting is the home, the neighborhood, or the school. The essence of educational instruction consists of (1) determining what a child should learn, and (2) helping him learn it. In the home, instructional goals typically center on self-care, simple forms of social and moral development, and basic cognitive behaviors; and in the neighborhood, the emphasis is on social, recreational, and athletic abilities and knowledge. In both these situations, the objectives of teaching are almost "unconscious", i.e., they are "natural" to the practices of the family or the neighborhood group. In the school, the goals of instruction, generally formalized as curricula, focus on the verbal forms of knowledge and abilities which will presumably be serviceable to the child sometime in the future. The effectiveness of parents, peers, and teachers as instructors depends on their motivation and teaching know-how. Unfortunately, the teaching skills of most people, whether these skills have evolved through personal experience, formal school training, or a combination of both, are less than optimal because they are based on outmoded concepts of man and the way his behavior is modified. In other words, there is a lag between what we, as a culture, know about the principles of learning and what we practice. For example, many teachers teach on the assumption that repetition (rote drill) leads to learning: the

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more repetition, the better the learning.

This paper presents an analysis of the human learning process as it is known through research at present. It also presents some of the implications of this analysis for helping normal and deviant children approach their full psychological potential.

Learning and the Concept of Strengthening New Relationships

During the past 50 years, psychologists have devoted more of their efforts to the study of learning than to any of the other concepts in their field, such as perception, intelligence, or motivation. But a student interested in specializing in learning is frequently confused by reports of contradictory findings and discussions of seemingly conflicting theoretical issues. One source of perplexity to a neophyte is the fact that learning in the technical literature is defined in two very different ways and the signals indicating which definition an author is using are not always clearly stated. That is to say, some psychologists refer to learning as a hypothetical mental process; others, as an empirical relationship. Let us elaborate.

When learning is conceived of as a hypothetical mental process, the writer usually distinguishes between learning and performance. According to this view, learning is a hypothetical state or process in the individual which results from certain kinds of experiences. On the other hand, performance, or better, change in performance, is the observable result of this hypothetical internal process. Change in performance may be manifested during or immediately after a learning experience, but there are situations in which the change in performance is apparent only

on some future occasion. Hence, learning as a hypothetical state or process may be latent; it may have occurred but may not be manifested until the proper circumstance arises. Thus an individual may be browsing through a set of pictures and on questioning might reveal that he remembered almost nothing about the contents of the pictures. However, if after browsing through the pictures he were told to look at the pictures again and memorize their contents, he would probably perform this task more rapidly than another person who had not had the opportunity to peruse the pictures beforehand. Furthermore, according to this view, material learned latently may interact with other hypothetical mental states and processes, such as cognitive structures or emotional dispositions, and the resulting performance may reflect a synthesis of these interactions. Consequently, the same learning experience may not necessarily produce the same change in performance on some future occasion.

The objections to conceptualizing learning as a hypothetical state or process are twofold: (1) It makes learning a mysterious process, something that takes place in a non-observable realm such as the mind, and (2) it disposes investigators to ignore the study of the observable conditions that determine changes in behavior at the time they occur.

The other meaning of learning, the empirical definition, refers to the relationship between successive stimulations and progressive changes in observable behavior. (The meaning of "observable changes in behavior" in this definition is precisely that of "changes in performance" in the hypothetical definition of learning.) For example, the successive stimulations in a learning situation might consist of serially (1) exposing a child to a picture of an ocelot and (2) prompting him to say the animal's

name; and the progressive changes in observable behavior might be the number of times (trials) the child takes to say "ocelot" without the aid of prompts. There is an objection to this definition also, although it is not discernible in the above example. The difficulty becomes apparent when one attempts to generalize or apply it diversely. For example, it is well known that practice (e.g., in playing tennis) under certain circumstances (e.g., extreme fatigue) will deteriorate performance rather than improve it. The old adage, "Practice makes perfect" should be revised to read, "Under proper setting conditions, practice makes perfect." It is abundantly clear that there are many circumstances in which successive stimulations or exercise produce regression rather than progression in behavior.

If we modify slightly the empirical definition of learning, we can transform it into a concept that would be sound and useful for both theoretical and practical purposes. All that is necessary is that we define learning as the observable relationships between environmental circumstances and behavior that strengthen new behavior, linguistic, social, motoric, cognitive, and emotional. Learning defined this way - as a description of the conditions under which new behavior develops - is congruent with findings from the extensive literature on the experimental analysis of animal and human behavior and in so doing places us in a position to reap the benefits of a rich harvest of findings bearing on the role of (1) antecedent stimulation (the task to be learned), (2) response consequences (the events following correct and incorrect responses), and (3) setting conditions (the context in the teaching situation). Among other things, application of this knowledge to the

psychological development of children can help us understand how a child learns under the natural circumstances of everyday living or without the aid of a teacher, and how he learns under the conditions of an instructional setting.

Behavioral Analysis of Instruction,

Normal and Remedial

We have a long way to go before we can be assured that knowledge from the research laboratory is being vigorously and appropriately applied to the educational advantage of children. The distance is measured in the time required for society to relinquish the concept of teaching as an intuitive art and replace it with teaching as an artfully applied behavioral technology. It is difficult to estimate the number of years that this transition will require for it will depend on the teaching effectiveness of behavioral scientists, applied behavioral scientists, and most particularly, professional educators. Theirs is not an easy task considering that they will be advocating not only new teaching techniques, but also a concept of the developing child which is in harmony with a scientific analysis of human behavior and development (Bijou & Baer, 1961). Once society accepts modern learning (behavioral) principles as foundational for all kinds of instruction, a teacher or any individual in a teacher's role will stop trying to teach by "imparting knowledge"; or by "communicating ideas" to the child. He will instead devote his humanistic interests and his creative energies to engineering the teaching situation to facilitate learning no matter whether a child is classified as accelerated, normal, retarded, or otherwise deviant, or whether he is in a tutorial or group situation.

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At present, the general cultural view is that anyone can teach, but only a few can teach well and these "gifted" teachers are characterized by their dedication, patience, enthusiasm, etc. Therefore, if one wishes to be a competent teacher, he is advised to read what people (almost anyone, but especially journalists, philosophers, educators, and teachers) are writing about competent teachers and to seek occasions to observe experienced teachers in action. The probability is not high that this kind of preparation will produce many first-rate teachers because it does not go far enough. It does not give the student opportunities to change conditions and to observe whether such changes enable his pupil to learn.

The view that teaching is an artfully applied behavioral technology also posits that anyone can teach and that some can teach better than others. But the competency of a teacher is judged by how well he or she knows and applies behavior principles to help a pupil make progress toward goals stated in behavioral terms. Teaching here is defined as the management of conditions in the environment to expedite learning (Skinner, 1968). The teacher, with or without being aware of the steps she is taking or her reasons for taking them, arranges all the "things" at her disposal (e.g., educational materials, teaching procedures, and social settings) to set the stage for learning. This means in reality that she knows (1) how to eliminate behavior that competes with the task to be learned, e.g., she ignores or reprimands a child's disruptive behavior or emotional outbursts depending on her evaluation of their significance to the learning task at home; (2) how to respond to a child's efforts (responses to learning tasks) in ways that are meaningful

(functional) for each child; (3) how to sequence programs in self-care, academic, social, emotional, and recreational subjects so that a child can start at the level of his behavior repertory (competence) and make progress at a reasonable rate (Mager, 1968); (4) how to use procedures that attenuate incorrect answers and disruptive social behaviors; (5) how to build serviceable study behaviors, i.e., she strengthens better study behaviors and attitudes so that they become part of a child's way of dealing with future learning assignments (Mager, 1968); and (6) how to keep detailed progress records.

Keeping records (e.g., number of correct responses, units of work completed, number of errors) is crucial not because it provides the teacher with information for grading a child but because it provides her with the best guide for evaluating the effectiveness of the instructional programs she has proscribed. In the behavioral approach, a cardinal assumption is that learning, or progressive changes in a child's behavior, occurs because of changes in the learning situation. The significance of this hypothesis for effective teaching is this: When a child is progressing at a reasonable rate, the situation, consisting of the programmed materials, prompting procedures, response contingencies, and setting conditions, is adequate for him; when a child is not progressing at a reasonable rate, the situation is not adequate for him and an evaluation and change are indicated.

The behavioral analysis of instruction has been applied to a variety of problems including retarded development (Bijou, in press), psychotic behavior of children (Iovaas, 1971), speech and language (Sloane & MacAulay, 1968), pre-delinquent behavior (Phillips, Phillips, Fixsen, &

Wolf, 1972), and delinquent behavior (Cohen, 1972). Moreover, it has been used in a variety of settings including the home (Hawkins, Peterson, Schweid, & Bijou, 1966), day-care centers (Doke & Risley, 1972; and Gewirtz, 1971), nursery schools (Harris, Wolf, & Baer, 1964), elementary school classrooms (O'Leary & Drabman, 1971), special classrooms (Bijou, in press, and Quay, Werry, & McQueen, 1966), and institutions (Cohen, 1972, and Thompson & Grabowski, 1972).

Learning Disorders and Disabilities

A recent trend in special education is to designate non-retarded low-achieving children as children with a learning disorder or disability. Previously these same kinds of children were described as retarded in school achievement, such as reading, arithmetic, spelling, or writing. This change in terminology is a dubious advance because, from a remedial treatment point of view, the more specific the indication of a child's school problem, the better. Treatment by its nature must deal with specific forms and functions of behavior and not with general mental conditions. To be effective, remediation must increase a child's skills in the academic subjects which are his problem. It must build new behaviors and motivations. It will not and cannot improve a pathological learning faculty. "Learning disability" suggests that there is something generally wrong with a child, like a low blood count, or it suggests that a child is having difficulty with school work because his learning faculty is disordered or his learning ability is disabled. The concept of learning disorder or disability which is based on the definition of learning as a hypothetical construct discussed previously is not a disorder in the same sense as that of a stomach disorder, with changes in

physiology and possibly pains and discomfort in the region of the stomach; and a learning disability is not a disability in the same sense as that of a writing disability in which a person cannot write letters and numbers.

Our discussion of the usefulness of the term learning disorder and disability raises questions about the nature of diagnosis in the realm of behavioral problems. Let us examine some of the issues involved. Diagnosis in psychology and education generally refers to the use of psychometric, medical, educational, and clinical techniques to obtain data in order to place a child in one or several classification categories, e.g., psychiatric (autistic), intelligence (borderline), or educational potential (trainable). This concept of diagnosis is useful to school administrators, legislators, judges, and other public officials because it can be used to appeal for funds for children who need special personnel, facilities, and materials. It is not useful to those whose responsibility it is to plan and carry out effective treatment programs because in actuality there is not a specific treatment program for children in each of the diagnostic categories. Although there is considerable discussion in the literature about treatment programs for the autistic, the brain-injured, and the socio-economically deprived, the remedial programs proposed for children in one category are not necessarily contraindicated for children in other categories. For example, a program developed for clinically inferred, brain-damaged children can be used profitably, and certainly without detrimental effects, on hyperactive children not diagnosed as brain-damaged. Furthermore, most special teachers and therapists are not acquainted with the programs in the

literature designed for presumably specific categories of deviant children and those who are aware of some of these programs find that in most instances they cannot put them into operation under existing school conditions because of the lack of adequate facilities, equipment, and trained personnel.

Diagnosis, from the point of view of behavioral analysis, is a double-edged sword. It consists of classifying a child in one or more of the categories noted above, and of assessing a child's behavioral repertoires (behavioral assets) which are relevant to the development of new behavior and the modification of problem behavior. Detailed information about a child's relevant repertoires in specific objective behavioral terms is the basis for planning first-approximation, tailor-made instructional programs. With that kind of data, the teacher can proceed with instruction as outlined on pages 5, 6, and 7.

Summary

Helping a child attain his full psychological potential, no matter whether he is normal or deviant in development, consists of providing him with opportunities to learn in both natural and instructional settings. In both situations he must engage in activities that produce consequences (i.e., that change the environment in some way) because such consequences change his behavior in some way. An understanding of the conditions that change behavior in progressive ways (i.e., of the learning process) will aid those who aspire to help a child attain his full potential.

Learning is defined in the psychological literature either as a hypothetical mental ability or as a relationship between repeated

stimulation and changes in performance. Both definitions are rejected: the first because it makes learning a non-observable phenomenon; the second because it lacks generality. These difficulties are avoided if learning is conceptualized as the strengthening (conditioning) of new relationships between an individual's behavior and environmental events. From this point of view, a teacher knows and manages skillfully all of the known conditions that have been demonstrated to affect behavior change: the context of learning, and the programming of stimuli which precede and follow the behavior being modified.

There are two implications of this analysis for children with problems in self-care, language, school subjects, and social behavior. First, it is more fruitful to refer to these children as children with specific problems rather than with learning disorders or disabilities because the teacher can then concentrate on the child's specific shortcoming suggested by the designation rather than trying to do something about a pathological hypothetical mental state. Second, it suggests that findings from the experimental literature, in terms of the concepts and principles of learning, can readily be applied to helping the teacher help the child, a fact which is being demonstrated in the growing literature on programming instructional materials, managing response contingencies, and setting favorable conditions for learning.

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